

# 11<sup>TH</sup> U.S. SYMPOSIUM ON HARMFUL ALGAE

## EFFECT OF LONG TERM EXPOSURE OF TOXIC PYRODINIUM BAHAMENSE ON THE CLEARANCE RATE OF EASTERN OYSTERS

The saxitoxin-producing dinoflagellate, *Pyrodinium bahamense*, commonly occurs during the summertime in Florida estuaries, especially in certain parts of Tampa Bay and the Indian River Lagoon. The alga is relatively slow growing yet forms high biomass blooms, suggesting losses (e.g., grazing, transport) may be low in subbasins where these blooms are common. Restoration of filter-feeding bivalves that effectively consume this alga might serve as one tool for bloom mitigation. We investigated indices of grazing and health in eastern oysters (*Crassostrea virginica*) exposed to a toxic Florida isolate of *P. bahamense*. The oysters successfully consumed *P. bahamense* after both pulsed and short-term laboratory exposures, but questions on the condition of the oyster health and clearance abilities after prolonged exposure remained. To test the effect of prolonged toxin exposure, oysters collected from Tampa Bay were re-deployed in cages during the 2021 *P. bahamense* bloom. Oysters were subsampled during bloom development, maintenance, and post-termination to assess oyster clearance rates, condition index, and tissue toxin content. No significant differences in clearance rates were observed between bloom development and maintenance phases. Condition index declined and tissue toxin content increased during peak bloom, but both returned to pre-bloom levels 2 weeks after the conclusion of the bloom. These results suggest oysters may be able to sustain and recover quickly after *P. bahamense* blooms. Research questions on potential sublethal effects on bivalves due to prolonged saxitoxin-exposure and transfer of toxins within the food web remain. However, our results are informative for resource managers weighing the benefits and risks associated with using shellfish as both a mitigation tool against high biomass blooms and a habitat restoration mechanism.

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